IN THE CLAIMS

1. (currently amended) A method of regenerating a used activated carbon sorbent comprising:

creating an ~~a~~ activated carbon sorbent mixture containing used regenerated activated carbon sorbent and unused activated carbon sorbent;

exposing the ~~used~~ activated carbon sorbent mixture to a solution to remove contaminants collected on at least the used activated carbon sorbent to restore mercury sorption effectiveness to the used activated carbon sorbent, ~~wherein~~ the solution including ~~includes~~ a ~~halide~~ salt ~~salt,~~ containing an associated cation;

dewatering the activated carbon sorbent mixture to remove used activated carbon sorbent ~~particles~~ and at least some contaminants from the solution forming used regenerated activated carbon sorbent and a liquid; ~~and~~

drying the dewatered regenerated activated carbon sorbent from the used regenerated activated carbon sorbent mixture;

treating at least some of the liquid to remove at least some compounds therefrom; and

mixing at least some of the liquid with at least one of used regenerated activated carbon sorbent and unused activated carbon sorbent.

2. (currently amended) The method of claim 1, further comprising separating at least some ~~wherein~~ ash ~~is separated~~ from the used activated carbon sorbent mixture prior to exposure of the used activated carbon sorbent mixture to the solution.

Claims 3–4 (canceled)

5. (original) The method of claim 1, wherein the solution is a salt solution.

Claims 6–8 (canceled)

9. (original) The method of claim 1, wherein the solution includes an organic salt solution.

10. (original) The method of claim 9, wherein the organic salt solution includes:

at least one anion from at least one of citric acid, tartaric acid, oxalic acid, malonic acid, maleic acid, formic acid, and acetic acid; and

at least one associated cation, such as ammonium, sodium, potassium, iron, aluminum, boron, zinc, manganese, magnesium, or calcium.

Claim 11 (canceled)

12. (currently amended) The method of claim 1, wherein the used activated carbon sorbent mixture contains constituents derived from a flue gas stream.

13. (canceled)

14. (original) The method of claim 1, wherein the contaminant includes sulfuric acid.

15. (currently amended) The method of claim 1, wherein the mercury sorption effectiveness ~~effictiveness~~ of the used activated carbon sorbent is restored by removing anions collected on the used activated carbon sorbent.

16. (currently amended) The method of claim 1, wherein the mercury sorption effectiveness of the used activated carbon sorbent is restored by removing sulfuric acid from the used activated carbon sorbent.

17. (currently amended) The method of claim 1, further comprising agitating the used activated carbon sorbent mixture and the solution.

18. (currently amended) The method of claim 1, further comprising mixing an additive with the regenerated activated carbon sorbent prior to injecting the regenerated activated carbon sorbent into the flue gas stream.

19. (original) The method of claim 18, wherein the additive neutralizes acids.

20. (original) The method of claim 18, wherein the additive is a calcium-based additive.

21. (currently amended) A method of regenerating a used activated carbon sorbent comprising:

exposing the used activated carbon sorbent to a solution to remove contaminants collected on the used activated carbon sorbent to restore mercury sorption effectiveness to the used activated carbon sorbent;

dewatering the used activated carbon sorbent to remove used activated carbon sorbent ~~particles~~ and contaminants from the solution forming a liquid having contaminants;

adding a promoter comprising at least one of bromine, a bromine compound, and combinations thereof to the activated carbon sorbent ~~a hydrohalide, halogen, or one or more halogens combined with a Group V or Group VI element~~; ~~and~~

drying the dewatered used activated carbon sorbent ~~mixture~~ forming a regenerated used activated carbon sorbent; and

treating at least some of the liquid to remove at least some contaminants therefrom.

Claims 22–26 (canceled)

27. (currently amended) A method of regenerating a used sorbent and enhancing unused sorbent comprising:

creating ~~a~~ an activated carbon sorbent mixture containing used activated carbon sorbent and unused activated carbon sorbent, the activated carbon sorbent and unused carbon sorbent comprising at least one composition of granulated form and fibrous form;

regenerating the used activated carbon sorbent by exposing the activated carbon sorbent mixture to a solution to remove contaminants collected on the used activated carbon sorbent to restore mercury sorption effectiveness to the activated carbon sorbent, ~~wherein~~ the solution including ~~includes~~ a compound made up of at least one of bromine, bromine compounds, and combinations thereof ~~a hydrohalide~~ for low-ash and fiber sorbent regeneration; and

exposing the regenerated used activated carbon sorbent to a flue gas stream.

28. (currently amended) The method of claim 27, wherein the regenerated activated carbon sorbent is exposed to the flue gas stream by injecting the regenerated sorbent into the flue gas stream.

29. (currently amended) The method of claim 27, wherein the regenerated activated carbon sorbent is exposed to the flue gas stream using a fixed sorbent bed.

30. (currently amended) The method of claim 27, wherein the regenerated activated carbon sorbent is exposed to the flue gas stream using a traveling sorbent bed.

31. (currently amended) The method of claim 27, wherein the regenerated activated carbon sorbent is exposed to the flue gas stream using a traveling fiber filter.

Claims 32–36 (canceled)

37. (currently amended) A method of enhancing the effectiveness of ~~a~~ an activated carbon sorbent for capturing mercury comprising:

exposing the activated carbon sorbent to at least one of bromine, bromine compounds, and combinations thereof ~~a promoter selected from the group consisting of hydrohalides, metalhalides, halogens, and combinations thereof~~; and

modifying the carbon edge structure of the activated carbon sorbent to form carbocations so that the activated carbon sorbent accepts electrons from neutral mercury atoms of the mercury.

Claim 38 (canceled)

39. (currently amended) The method of claim 37, wherein the at least one of bromine, bromine compounds, and combinations thereof promoting the modification of the structure of the activated carbon solution comprises ~~is~~ a salt solution, the salt solution having an associated cation, such as ammonium, aluminum, boron, zinc, and iron.

Claim 40 (canceled)

41. (currently amended) The method of claim 37, wherein the salt solution includes an organic acid salt solution.

Claim 42 (canceled)

43. (currently amended) A method of enhancing the effectiveness of ~~a~~ an activated carbon sorbent by modifying the structure of the activated carbon sorbent in a mixture of ash and activated carbon sorbent comprising:

enhancing the activated carbon sorbent by exposing the activated carbon sorbent in a mixture of ash and activated carbon sorbent to one of an aqueous ~~a~~ solution and a nonaqueous solution that increases sorbent effectiveness, ~~wherein~~ the solution including ~~includes~~ one or more of bromine, bromine compounds, and combinations thereof, ~~thionyl bromide, sulfuryl bromide, phosphorus tribromide, phosphorus oxybromide, hypobromous acid, and bromine in nonaqueous solutions~~ for the mixture of ash and ~~ash-containing~~ activated carbon sorbent for the regeneration thereof; and

exposing the regenerated enhanced activated carbon sorbent to a flue gas stream.

44. (currently amended) The method of claim 43, wherein the enhanced activated carbon sorbent is exposed to the flue gas stream by injecting the enhanced activated carbon sorbent into the flue gas stream.

45. (currently amended) The method of claim 43, wherein the enhanced activated carbon sorbent is exposed to the flue gas stream using a fixed sorbent bed.

46. (currently amended) The method of claim 43, wherein the enhanced activated carbon sorbent is exposed to the flue gas stream using a traveling sorbent bed.

47. (currently amended) The method of claim 43, wherein the enhanced activated carbon sorbent is exposed to the flue gas stream using a traveling fiber filter.

48. (original) The method of claim 43, wherein the solution includes an inorganic acid solution.

Claim 49 (canceled)

50. (original) The method of claim 43, wherein the solution includes an organic acid.

Claims 51–55 (canceled)

56. (currently amended) A method of removing mercury or other pollutants in a flue gas stream during the burning of fossil fuels, comprising:

exposing an activated carbon ~~the~~ sorbent mixture to the flue gas stream to remove at least mercury as a contaminant ~~contaminants~~ from the flue gas stream forming a used activated carbon sorbent;

mixing the used activated carbon sorbent with fresh activated carbon sorbent and exposing the mixture of used activated carbon sorbent and fresh activated carbon sorbent to a solution including bromine, bromine compounds, and combinations thereof to remove contaminants collected on the used activated carbon sorbent to restore mercury sorption effectiveness to the used activated carbon sorbent and

enhance sorption effectiveness of the fresh active carbon sorbent, ~~wherein~~ the solution including ~~includes a halide salt, containing~~ an associated cation, such as ammonium, aluminum, boron, zinc, and iron;

dewatering the solution ~~mixture~~ to remove used activated carbon sorbent and any fresh activated carbon sorbent ~~particles~~ and contaminants from the solution;

drying the used activated carbon and unused activated carbon sorbent particles; and

exposing the dried used activated carbon sorbent and the fresh activated carbon sorbent ~~particles~~ to the flue gas stream to remove additional contaminants from the flue gas stream.

Claim 57–58 (canceled)

59. (original) The method of claim 56, wherein the solution is a salt solution.

Claim 60 (canceled)

61. (original) The method of claim 56, wherein the solution includes an organic salt solution.

Claims 62-69 (canceled)